of vast benefit to millions of men in the accurate forecasts of its monsoon rains. To be able to study Indian climatology with such a body of charts as are here collected is a pleasure which it is hoped many will enjoy.

The *Introduction* gives a short history of meteorological observation and organization in India, including a list of publications of the Meteorological Department and a list of the observatories, and then follows a brief, compact, and thoroughly satisfactory discussion of the charts. Plate I is a splendid general orographical map of India, the colouring of which is admirably adapted for bringing out the geographic details which are important in an understanding of the meteorology. Several cross-sections help to make clear the principal features of the topography. Other plates show the political, rainfall, medical, and meteorological divisions. Two large charts showing, for Southern Asia and the Indian Ocean, the isobars and winds for January and July are followed by smaller charts of pressure and wind for 8 A. M., 10 A. M., and 4 P. M. for each month and for the year; also by monthly and annual charts of mean pressure and wind for the day, of actual diurnal range, and of diurnal range reduced to sea-level. The temperature charts include the following: mean daily temperature, mean maximum, and mean minimum for each month and the year; diurnal range, absolute maximum, and absolute minimum for each month and for the year. Relative and absolute humidity and cloudiness are shown for each month and for the year (mean daily, 8 A. M. and 4 P. M. means). The rainfall charts include monthly and annual charts of normal precipitation and of the number of rainy days; seasonal rainfall, number of rainy days, and noon pressure at 10,000 feet for January-February; March to May; June to October; November-December; December-April, and May November. Storm tracks are shown with particular detail on monthly charts.

These 120 plates are coloured with that good taste and effectiveness which characterized the charts in the *Atlas of Meteorology*. For our own part, we have no single adverse criticism to make. A good many of the maps present details which are not commonly charted or expected; but the need of their inclusion in this *Atlas* is established by the name of the compiler, and they certainly contribute greatly towards making the *Climatological Atlas of India* a volume of extraordinary excellence and value. This *Atlas* takes a very prominent place in the splendid series of *Memoirs* and other publications of the Indian Meteorological Department. R. DEC. W.

Structural and Field Geology: For Students of Pure and Applied Science. By James Geikie, LL.D., etc., Professor of Geology and Mineralogy in the University of Edinburgh. New York: D. Van Nostrand Company, 1905, pp. 435.

This exceedingly attractive volume, which deals almost wholly with the side of practical geology, will be welcomed by all—teachers, students, field-surveyors, engineers—who are in any way associated with the study of geology or the interpretation of facts in the field. Judiciously laying aside considerations which are involved in the theories and outer conceptions of geology, the author, whose training and power of lucid exposition have made him particularly fitted for the service which he now gives over to others, enters directly upon the consideration of the structural aspects of rock-formations and their appearance in the field, and follows with explanations regarding their manner and method of occurrence, their deformations and alterations, the laws and conditions which govern these changes, special formations, etc., always maintaining well to the front the practical aspects of every form of inquiry. Concluding chapters are on geological survey, geological aspects and sections, and the economic aspects of geological structure. The book is of a kind that

few students in geology can well afford to do without, and it appeals to the specialist through its numerous facts and the force of opinion which their interpretation carries. Differences of opinion which one may hold with the author on certain obscure problems have no place in the review of a book which is replete with information, and which seeks to present chiefly the accepted or recognizable facts in the field. The unusually good quality of the illustrations which illumine the text, vastly superior to what one generally finds in manuals of geology, helps not a little to the attractiveness of this particular volume. A. H.

Handbuch der Geographischen Ortsbestimmung für Geographischen und Forschungsreisende. Von Dr. Adolf Marcuse. x and 342 pp., 54 Illustrations and 2 Star Maps. Friedr. Vieweg & Sohn, Braunschweig, 1905. (Price, M. 10.)

This book is especially adapted for the needs of teachers and students of mathematical geography and for explorers. It deals with the most important and practical methods of determining time, latitude, longitude, and azimuth. Though the extension of geographical surveys is continually adding to the number of points whose position has been fixed by triangulation, there are still large parts of the world where these fixed points are not available for starting a survey, and it is therefore necessary for the surveyor himself to establish the positions between which he measures his baseline. Before going into the field, therefore, it is highly desirable that the explorer or traveller should master the best methods devised for this purpose. Dr. Marcuse's book supplies the student who has the preliminary mathematical training required with the textual assistance he needs.

After treating of the astronomical-geographical bases of surveying, Dr. Marcuse describes and summarizes the most important nautical almanacs and ephemerides in use, and the tables of logarithms, etc., which lessen the labour of computing the observations. This is followed by a very complete and well-illustrated account of the principal instruments used. The second half of the book is given to descriptions in detail of the methods used in determining geographical positions.

Nouvelles données sur la Zone Littorale d'Angola. Par Paul Choffat. (Contributions à la Connaissance Géologique des Colonies Portugaises d'Afrique, No. 2), 4to, 78 pp., 4 Plates, illustrating fossils, and 3 Figures in the Text. Comm. Geol. Portug., Lisbon, 1905.

One difficulty in depicting the geology of Angola has been the inadequacy of the maps, which, as yet, are on too small a scale to show the results of detailed geological study, and, in other respects also, are misleading. For example, the largest scale map (1:1,000,000) shows the railroad line in operation from Loanda, not where it was actually built, but along the route as at first projected. The results of geological investigation along the coast show that this zone of Angola, from Ambriz to the south of Mossamedes, consists of sandstones, probably Palæozoic, strata of the Cretaceous, Tertiary strata, probably Miocene, and superficial deposits. Little is yet known of the tectonic conditions that helped to produce the surface forms. A large part of the text is palæontological.

Handbuch der Erdbebenkunde. Von August Sieberg. xviii and 362 pp., 113 Illustrations, Maps and Index. Vieweg & Sohn, Braunschweig, 1904. (Price, M. 7.50.)

The author treats the phenomena of earthquakes, the methods of studying them, the instruments used in their investigation, and the mathematical and theoretical sides